

ECON5190
Games and Strategic Behavior (MBA & MSc Econ)
Time: 9:30am-12:50pm Thursday
Location: 1032 (LSK Building)

Instructor: Wooyoung Lim
Office: LSK 6080
Office Hours: by appointment.
Email: wooyoung@ust.hk

1 Course Objective

The course demonstrates how insights of game theory can be utilized by managers to address important decisions confronting the firm. The primary focus of the analysis is on understanding how other players form their strategies and expectations in order to identify one's own best response strategy. We will utilize game theoretic reasoning to analyze issues related to entry into new markets or exit from established businesses, changing the perceptions of competitors, the extent of product differentiation and proliferation that is implied by competition, and strategies aimed at alleviating price competition among firms.

This course introduces the basic concepts of game theory. The emphasis is on the unifying perspective that game theory offers to questions in economics, business, other disciplines, and everyday life. It will enable students to view social interactions as strategic games, to use game theoretic concepts to predict behavior in these interactions and to conceive of ways in which altering the game affects social outcomes.

2 Prerequisite

For MSc(ECON); FT-MBA and MBA Exchange students only. ECON5110 or 5130 or an approval from the instructor.

3 Required Readings

1. Harvard Business School Cases: A case pack will be provided soon.
2. Lecture Note 1-6: course web at Canvas.ust.hk

4 Reference Books on Reserve in Library

1. Dixit, Avinash, Susan Skeath, and David H. Reiley Jr. (DSR) "Games of Strategy," W. W. Norton & Company, Third Edition 2009.
2. Dixit, Avinash, Barry J. Nalebuff (D&N) "The Art of Strategy," W. W. Norton & Company, 2008.

5 Course Requirement and Evaluation

- Evaluation will be based upon written assignments (25%), class participation (5%), presentation (35%), and a final exam (35%).
- Assignments to be conducted in teams of minimum 4 and maximum 5 people.
- Weekly assignments will be handed out. They are due at the beginning of class the following week. It will be collected in class. Late submission is not accepted in any circumstances.
- Group assignments:
 - a. Each group will put together and present a case study. Each presentation should last **20 minutes**, with an additional **5 minutes** of class discussion led by the group. The 25 minutes requirement will be implemented **strictly**.
 - b. Each group must discuss the case analysis with Wooyoung and get some feedback, at least 2 days prior to the presentation.
 - c. Each group will work jointly on, and submit a group solution to, the four problem sets & case summary in the course. Each case summary should be 1 page length. Each question will be graded on a check plus (20 points) / check (13 pts) / check minus (5 pts) scale.
 - * Week 1: N/A
 - * Week 2: **No class** (Chinese New Year Break)
 - * Week 3: Problem 1-3 by Feb.18
 - * Week 4: Problem 4-8 & Case (1,2,3) summary by Feb.25
 - * Week 5: Problem 9-10 & Case (4,5) summary by Mar.3
 - * Week 6: Problem 11-12 & Case (6,7) summary by Mar.10
 - * Week 7: Problem 13 & Case (8,9) summary by Mar.17
 - * Week 8: Case (10) summary by Mar.24
- The final exam is scheduled on **March 31, 2015 (Thursday)**, 10:00AM - 12:00Noon (2 hours). The final exam contains all the materials covered throughout the semester. In the case of absence at an exam due to medical reasons, the student is required to submit medical certificate issued by a registered medical practitioner. Appropriate documentation will be required for absences due to other reasons. Announcements, lecture slides, and supplementary materials (if any) will be updated onto the course website. If a student finds difficulties in the course and has any concern about the course, it is his/her benefit to contact me or the teaching assistant at the early stage.
- Office hours for the final exam will be held on March 28 (Monday) between 9:00AM-12:00Noon.

6 Course Outline (tentative, subject to change.)

Week1 (February 4): What is Game Theory? Strategy?

- Lecture Note 1: Elements of a Game, Thinking Strategically, Sequential-move Games (DSR Chapters 1,2,3).
- Lecture Note 2: Simultaneous-move Games (DSR Chapter 4)
[Classroom Experiment] Guessing Game

Week2 (February 11): No Class (Chinese New Year Break)

Week3 (February 18): Let me think about you who is thinking about me who is....

- Lecture Note 3: Best-response Curve Analysis (DSR Chapter 5, 6)
- Lecture Note 4: Mixed-strategy (reference only)
[Classroom Experiment] Centipede Game, Ultimatum Bargaining

Week4 (February 25): I do not know too much about you... What should I do?

- Lecture Note 5: Games with Incomplete Information (DSR Chapter 9)
[Classroom Experiment] Pure-Coordination Game, Assurance Game

Case 1. Entry Barriers (A): Deep Pockets [9-190-101]

Case 2. Sequential Entry [9-190-102]

Case 3. Selling Durable Goods [9-190-110]

Week5 (March 3): Do I trust you? Can I?

- Lecture Note 5: Games with Incomplete Information (DSR Chapter 9)
[Classroom Experiment] Monty Hall Game.

Case 4. Judo and the Art of Entry [9-794-103]

Case 5. Bitter Competition: The Holland Sweetener Company vs. NutraSweet (A) [9-794-079] & The Fog of Business [9-793-098]

Week6 (March 10): What if I meet you again tomorrow?

- Lecture Note 6: The Prisoners' Dilemma and Repeated Games (DSR Chapter 11)
- Chanters' Dilemma (Reading material will be provided.)

Case 6. Bitter Competition: The Holland Sweetener Company vs. NutraSweet (A) [9-794-079] & Signaling Costs [9-793-125]

Case 7. Competition and Product Variety [9-190-100]

Week7 (March 17): Applications

Case 8. Product Proliferation and Preemption [9-190-117] & The Breakfast Cereal Industry: The 1972 Antitrust Complaint [9-190-116]

Case 9. Competition and Compatibility: Mix and Match [9-190-112]

Week8 (March 24): Advanced Topics in Game Theory

Case 10. Olympian Competition: Bidding For Olympic Television Rights [IB50-PDF-ENG]

– Introduction to some advanced topics in Game Theory (Auction, Matching, Experimental Economics, and so on.)

– Review, Q/A

Final Exam: March 31 (Thursday) 10:00am-12:00noon

7 HBS Cases for Presentations and Some Key Words

- Entry Barriers: Net Present Value, Sunk Cost, Backward Induction
- Sequential Entry / Selling Durable Goods: Backward Induction, Game Tree
- Judo Economics: Backward Induction, Game Tree
- Fog of Business: Backward Induction, Game Tree, Asymmetric Information
- Signaling Costs: Backward Induction, Game Tree, Asymmetric Information
- Competition and Product Variety: Simultaneous-Move Game, Best Response Analysis
- Product Proliferation: Backward Induction, Game Tree, Application to Law and Economics
- Competition and Compatibility: Simultaneous-Move Game, Best Response Analysis
- Olympian Competition: Games of Incomplete Information

8 Schedule of Group Presentations

Week4 Group1 (Entry Barriers), Group 2 (Sequential Entry & Selling Durable Goods)

Week5 Group3 (Judo Economics), Group4 (Fog of Business + Bitter Competition)

Week6 Group5 (Signaling Costs + Bitter Competition), Group6 (Competition and Product Variety)

Week7 Group7 (Product Proliferation & Cereal Industry), Group8 (Competition and Compatibility), Group9 (Olympian Competition: Bidding For Olympic Television Rights)

9 Learning Environment

Matured conduct in classroom is the requirement for this course. Distractive behaviors such as use of cell phone, instant messaging and chatting are not tolerated. Violation of this rule will result in significant deduction of points from student's grade. Please refer to following website for the guideline for good learning environment:

http://www.ust.hk/vpaa0/conduct/good_learning_experience.pps.

10 Academic Integrity Policy

Honesty and Integrity is central value in HKUST. Please be aware of the importance and maintain high standard of honesty in the problem sets and examinations in this course. Familiarize yourself to the university rules and the HKUST academic honor code by visiting following website: <http://www.ust.hk/vpaa0/integrity/>.